

CLAIMS

1. Optical detector device for a meter, comprising a consumption indicator formed of a rotating disc (4) provided  
5 with a so-called active sector (4A) and optical elements of emitting type and receiving type opposite said disc, whose received optical signal is processed to infer at least the number of rotations of said disc, comprising at least two said optical elements (6A, 6B) of one type and at least one said  
10 optical element (7) of the other type, characterized in that said sector (4A) is a reflecting sector with a centre angle called a first angle ( $\gamma$ ) of between  $45^\circ$  and  $225^\circ$ , and said two optical elements of one type (6A, 6B) are emitting elements of a light beam, the lines connecting each trace [S(6A), S(6B)] of  
15 these beams on disc (4) forming a centre angle in the centre of the disc called a nonzero second angle ( $\alpha$ ).

2. Device as in claim 1, characterized in that said first angle ( $\gamma$ ) is equal to twice said second angle ( $\alpha$ ).

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3. Device as in claim 1 or 2, characterized in that said reflecting sector (4A) has a centre angle ( $\gamma$ ) of  $180^\circ$ .

4. Device as in any of the preceding claims  
25 characterized in that it comprises two emitting optical elements (6A, 6B) and one receiving optical element (7).

5. Device as in claim 4, characterized in that said three optical members (6A, 6B, 7) are substantially aligned  
30 and the receiving optical element (7) is between the emitting elements (6A, 6B).

6. Device as in any of the preceding claims, characterized in that it comprises two emitting optical elements (6A', 6B'') and two receiving optical elements (7', 7'') associated in pairs, each receiving element receiving the optical beam of the emitting element in the same pair.

7. Device as in any of the preceding claims, characterized in that the two optical emitters (6A, 6B) operate sequentially.

8. Device as in any of the preceding claims, characterized in that the non-reflecting sector (4B) of said disc (4) is inclined with respect to the axis of the disc.

9. Device as in any of the preceding claims characterized in that the positioning of said optical elements (6A, 6B) is such that the angle of incidence (B) of the optical beam emitted and received by the optical elements is less than  $60^\circ$ .

10. Device as in any of the preceding claims characterized in that it comprises a collimator device (8) for the optical beam.

11. Device as in claim 10, characterized in that said collimator device (8) comprises slits (9) limiting stray interference between light beams.

12. Device as in any of the preceding claims, characterized in that it comprises an additional optical emitter (10) for presence detection.

13. Device as in claim 12, characterized in that the trace on disc (4) of this presence detection emitter (10) is centred on the axis of symmetry (A) of the disc.

5        14. Device as in claims 6 and 12, characterized in that said presence detection optical emitter is associated in a pair with a receiving optical emitter, the trace (S') of this emitter on the disc being substantially equidistant from those of said two preceding emitting optical elements (6A', 6B").

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15. Fluid meter (1) comprising a rotating disc (4) that is part of an optical detector device as in any of the preceding claims.

15        16. Detection module (5) intended to cooperate with a fluid meter (1) and comprising said optical elements (6A, 6B, 7) that are part of a device as in any of claims 1 to 14.

17. Module as in claim 16, characterized in that it also  
20 comprises an optical beam collimator device (8).

18. Module as in claims 16 and 6 or 16 and 14, characterized in that the emitting optical element and the receiving optical element of at least one of said pairs are  
25 housed in a common support (11).

19. Module as in claim 18, characterized in that said support (11) has a sealing lip (11B) surrounding the pair of optical elements and intended to bear upon said fluid meter.

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20. Module as in claim 18 or 19, characterized in that said support (11B) comprises a flange (11C) separating the two optical elements and intended to bear upon said fluid meter.